* Azeotropic - mixture :-

Such a mixture which, like a pure chemical compound, boils at a constant temperature and distils over completely at the same temperature without change in composition, is called constant boiling mixture or azeotropic mixture.

A mixture of two or more liquids whose properties cannot be altered or changed by simple distillation. This happens because when an azeotrope is boiled, the vapour has the same proportion of constituents as the unboiled mixture. Because their composition is unchanged by distillation.

Some azeotropic mixture of pairs of compounds are known and many azeotropes of three or more compounds are also known.

for examples -

(1) Nitric acid (HNO_3) and Water (H_2O) is an example of azeotrope.

Composition -

HNO_3 → 68% by mass

H_2O → 32% by mass

Boiling point → 393.5 K.

(2). Ethanol (C_2H_5OH) and Water (H_2O) is an azeotrope.

Composition -

C_2H_5OH → 95% by volume.

H_2O → 5% by volume.

Boiling point → 351.1 K.